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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/816,941	03/23/2001	Stephen Christopher Kitson	30001065	6953

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EXAMINER

DUONG, THOI V

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 11/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/816,941

Applicant(s)

KITSON ET AL.

Examiner

Thoi V Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-22 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of copending Application No. 09/816942 in view of Bryan-Brown et al. (USPN 5,917,570). Although the conflicting claims are not identical, they are not patentably distinct from each other because the examined claims are either anticipated by or would have been obvious over the reference claims. The only difference between the examined claims and the reference claims is that the examined claims are broad and additionally recite a plurality of azimuthal directions for the liquid crystal device. However, it would have been obvious to a person of ordinary skill in the art to employ a birefringent structure in the bistable nematic liquid crystal of the reference claims to produce desired alignments in a plurality of azimuthal directions as taught by the Bryan-Brown's reference.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

4. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Bryan-Brown et al. (USPN 6,456,348 B2).

With respect to claims 1-14, as shown in Figs. 1, 2, 7a and 7b, Bryan-Brown discloses a liquid crystal device comprising a first cell wall 4 and a second cell wall 3 enclosing a layer 2 of liquid crystal material;

electrodes 6 and 7 for applying an electric field across at least some of the liquid crystal material; and

a surface alignment structure 26 on the inner surface of at least the first cell wall providing a single desired alignment to the liquid crystal director (col. 4, lines 65 through col. 5, lines 4 and col. 6, lines 14-53),

wherein the said surface alignment structure comprises a two dimensional array of upstanding features which are at least one of shaped and orientated to produce the

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desired alignment; but not including any device in which the surface alignment structure comprises a sinusoidal bigrating (col. 3, lines 36-50);

wherein the features have a height in the range of about 1-3 micrometers (col. 3, lines 56-61);

wherein at least part of a side wall of the features is tilted with respect to the normal to the plane of the first cell wall (col. 9, lines 54-58);

wherein each feature has a width in the range of about 0.5 micrometer (col. 5, lines 11-19);

wherein the features are spaced from about .05 to 5 micrometers apart from each other (col. 10 lines 20-23);

wherein the liquid crystal material contains a surfactant (col. 3, lines 49-50);

wherein the features are formed from at least one of a photoresist or a plastics material (col. 3, lines 51-67 and col. 5, lines 16-40);

wherein the features are of at least one of a different height, different shape, different tilt and different orientation in different regions of the device (col. 3, lines 46-50);

wherein the upstanding features are formed from at least one of a photoresist material or a plastics material (col. 3, lines 51-67 and col. 5, lines 16-40); a method of manufacturing a cell wall comprising applying a plastics material to the surface of a wall, and embossing a two dimensional array of alignment features into the plastics material; said method excluding any method which produces a sinusoidal bigrating (col. 3, lines 52-61).

A method of manufacturing the liquid crystal device, as shown in Figs. 1 and 2, comprises securing a first cell wall 4 to a second cell wall 3, so as to produce a cell having spaced apart cell walls; filling the cell with a liquid crystal material 2, and sealing the cell; wherein one or both of the cell walls have at least one electrode structure thereon so that the device has electrode structures 6 and 7 for applying an electric field across at least some of the liquid crystal material (col. 4, lines 36-52).

Bryan-Brown also discloses that a cell wall 4 for use in manufacturing the liquid crystal device comprising a wall and an alignment structure on one surface thereof for providing a single desired alignment to the director of a liquid crystal material, said alignment structure comprising a two dimensional array of upstanding features which are at least one of shaped and orientated to produce the desired alignment; said cell wall excluding any cell wall in which the surface alignment structure comprises a sinusoidal bigrating. As shown in Fig. 3, a method of manufacturing the cell wall comprises applying a photoresist material to a surface of a wall, exposing the applied photoresist material to a suitable light source through a suitably patterned mask 20, removing soluble photoresist, and hardening the exposed photoresist material to produce a two dimensional array of alignment features on the wall; said method excluding any method which produces a sinusoidal bigrating (col. 5, lines 16-40).

With respect to claims 15-20, as shown in Figs. 1, 2, 7a and 7b, Bryan-Brown discloses a liquid crystal device comprising a first cell wall 4 and a second cell wall 3 enclosing a layer 2 of liquid crystal material;

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electrodes 6, 7 for applying an electric field across at least some of the liquid crystal material; and a surface alignment structure on the inner surface of at least the first cell wall providing at least one of a desired homeotropic or tilted homeotropic alignment to the liquid crystal director in a single azimuthal direction (col. 4, line 65 through col. 5, line 4), wherein the said surface alignment structure comprises an array of upstanding features (or posts) which are at least one of shaped and orientated to produce the desired alignment (col. 3, lines 36-67);

wherein the height of the features is at least equal to the average spacing between the features (col. 10, lines 20-22)

wherein at least part of a side wall of the features is tilted with respect to the normal to the plane of the first cell wall (col. 9, lines 54-58); and

wherein each upstanding feature or post comprises a discrete structure such as pillar(col. 3, lines 58-63);

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bryan-Brown et al. (USPN 5,917,570).

As shown in Figs. 1 and 2, Bryan-Brown discloses a liquid crystal device comprising a first cell wall 4 and a second cell wall 3 enclosing a layer 2 of liquid crystal

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material; electrodes 6 and 7 for applying an electric field across at least some of the liquid crystal material; and a surface alignment structure on the inner surface of at least the first cell wall providing desired alignments to the liquid crystal director in a plurality of azimuthal directions as shown in Figs. 5a and 5b, wherein the said surface alignment structure comprises an array of features which are a bigrating comprising an asymmetric modulated grating and a symmetric modulated grating arranged at a non-zero angle to one another with the two gratings having different groove depth or pitch values and the asymmetric grating having an asymmetric that varies along its length to produce the desired alignments. Accordingly, it is obvious that the distortion energy of the liquid crystal material is not the same in all of the said azimuthal directions because of the bigrating surface alignment structure.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (703) 308-3171. The examiner can normally be reached on Monday-Friday from 8:00 am to 4:30 pm.

Thoi Duong

10/29/2002


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